nucleocytoplasmic transport based on intracellular fibrils is proposed. Each chapter is summarized by a useful concluding 'overview'. An excellent feature of the book is the range of diagrams supplied to explain basic points and approaches to the inexperienced but this standard is not maintained for electron micrographs as their legends are often deficient in information or identification.

By definition, any book covering a topical field can only catch a 'window-in-time'. There are few references to work after 1989 in this book, and hence important information gathered since then is not included. Here the book has to compete with a number of recent reviews on the subject in scientific journals. Agutter is aware of this problem and, in giving his book a broad base of explanatory background and methodology, he has provided an essential feature which is often absent from short topical reviews. Hence, the book is a 'good buy' for those new to the field.

The second aim of the book is to show how progress in modern science occurs. Certainly there are examples in this field of advances occurring following the availability of new methodology but I am less happy about the attempts to introduce points of a philosophical nature. I wonder how intended readers might cope with analogies, counterfactuals and heuristic approaches, or is this in anticipation of the broader outlook of future undergraduates?

A.J. MacGillivray

Cell Surface and Differentiation; By T. Muramatsu; Chapman and Hall; London & New York, 1990; vii + 154 pages; £30.00

The central theme of this concise volume is the role of cell surface molecules in differentiation. This is a large and fast-growing field of research. Therefore, of necessity, the author has restricted his discussion to a limited number of topics which give a balanced view of our current knowledge of this subject area.

The book is divided into seven chapters, the first two of which may be regarded as introductory, dealing with biological aspects of differentiation and the molecular architecture of the cell surface respectively. While this introductory information, particularly concerning the biological aspects of differentiation is very useful it is very limited in its scope. Thus, for example, although a figure outlining the major events in blood cell differentiation is included the text does not clearly explain the differences between the various precursor and mature cell types.

A great deal of useful and fundamental information on the organisation of the plasma membrane and particularly how proteins are integrated into this structure is given in chapter two. However, the information is somewhat limited and, for example, no clear models for the structure of the nicotinic acetylcholine receptor or voltage gated sodium channel are presented.

The remaining five chapters (pp. 51–145) deal with the central theme of the book and discuss cell surface markers and the immunoglobulin superfamily; growth factors and receptors; cell adhesion molecules; cell surface carbohydrates and interactions between the cell surface and nucleus.

There is considerable discussion of the immunoglobulin superfamily both in the context of cell surface markers and of adhesion molecules. The molecular structures and relationships between the various family members are well explained and there is adequate discussion of the functions of these molecules. However, curiously some important details concerning these molecules are omitted. For example, there is no discussion of tissue specific glycosylation of Thy-1. Details of transfection experiments carried out with N-CAMs and cadherins are also omitted from the text. The discussion of the integrin superfamily is limited to five pages of text and no summary table of the various family members is included.

The chapter on growth factors primarily concentrates on a discussion of EGF, FGF and related molecules. Although a short section on glial differentiation is included there is essentially no discussion of neuronal differentiation and the effects of molecules such as NGF. Basic information on carbohydrate structures and the role of cell surface carbohydrates in adhesion and differentiation is included in the book.

In summary, the book covers a wide subject area and much useful information is concisely and clearly presented. However, the depth of discussion is limited and some important topics are omitted. In addition important recent work particularly on cell adhesion is not included. The book will serve as a sound introduction to this topic for undergraduates and for the general reader. Scientists working directly in this area will be much better served by more detailed texts and review articles.

P. Beesley

Molecular Genetics and Comparative Evolution; By J. Langridge; Research Studies Press/John Wiley; New York, 1990; viii + 216 pages; £32.50

The breathtaking rate of advance of molecular genetics challenges us to incorporate its findings into the frameworks of the more traditional biological questions, such as those of development and of evolution. For the questions of development, the integration of molecular genetics has been most successful, with the cloning and detailed study of genes which can mutate to developmentally-interesting phenotypes, and with the study of cell-type-specific transcription regulation. The synthesis of molecular genetics and evolution at the morphological and behavioural levels is, however, still in its infancy. Molecular evolution has been more concerned